**AP: CHAPTER 26: ORIGIN OF LIFE**

1. Start with the origin of the earth and identify the **time frame, conditions, and evidence** for each of the following steps leading to current life forms on earth.

a. Origin of the earth

b. Prokaryotes

c. Oxidizing atmosphere

d. Eukaryotic cells

e. Multicellular life

2. What was significant about the discovery of the iron oxide bands in the sedimentary layers.

3. Describe the theory of endosymbiosis.

4. Why did evolution seem to slow 750 to 570 million years ago?

5. What was special about the Cambrium Explosion?

6. Describe a few adaptations essential for the invasion of plants onto land.

7. Scientific Hypothesis for the origin of life

a. The first cells may have originated by chemical evolution on a young Earth

b. Abiotic synthesis of organic monomers is a testable hypothesis

c. Laboratory simulations of early-Earth conditions have produced organic polymers

d. RNA may have been the first genetic material

e. Protobionts can form by self-assembly

f. Natural selection could refine protobionts containing hereditary information

g. Debate about the origin of life abounds

8. Describe the hypothesized conditions on earth when life arose.

9. What did Louis Pasteur demonstrate with his experiment?

10. List the four stages for the formation of life.

a.

b.

c.

d.

11. What metabolic processes would you expect to see in protobionts?

12. Why is RNA now thought to be the first genetic code?

13. What did Oparin, Haldane, Miller and Urey accomplish?

14. What are some of the possible locations for the first life forms?